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UTILITY PATENT APPLICATION TRANSMITTAL

Attorney Docket No. 003470.P005 Total Pages (all documents) 15
First Named Inventor or Application Identifier
GREGG WAGNER
Express Mail Label No. EM014063005US

(Only for new nonprovisional applications under 37 CFR 1.53(b))

APPLICATION ELEMENTS
See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO:
Assistant Commissioner for Patents
Box Patent Application
Washington, DC 20231

1. ☒ Fee Transmittal Form
(Submit an original, and a duplicate for fee processing)
2. ☒ Specification Total Pages 10
(preferred arrangement set forth below)
 - Descriptive Title of the Invention
 - Cross References to Related Applications
 - Statement Regarding Fed sponsored R&D
 - Reference to Microfiche Appendix
 - Background of the Invention
 - Brief Summary of the Invention
 - Brief Description of the Drawings (if filed)
 - Detailed Description
 - Claims
 - Abstract of the Disclosure
3. ☒ Drawing(s) (35 USC 113) Total Sheets 1
4. ☒ Oath of Declaration Total Pages 2
 - a. ☒ Newly executed (original or copy)
 - b. ☐ Copy from prior application (37 CFR 1.63(d))
(for continuation/divisional with Box 17 completed)

(Note Box 5 below)

- i. ☐ **DELETION OF INVENTOR(S)**
Signed statement attached deleting inventor(s) named in prior application, see 37 CFR 1.63(d)(2) and 1.33 (b).
5. ☐ Incorporation By Reference (usable if Box 4b is checked)
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

6. ☐ Microfiche Computer Program (Appendix)
7. ☐ Nucleotide &/or Amino Acid Sequence Submission (if applicable, all necessary)
 - a. ☐ Computer Readable Copy
 - b. ☐ Paper Copy (identical to computer copy)
 - c. ☐ Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

8. ☒ Assignment Papers (cover sheet & document(s))
9. ☐ 37 CFR 3.73(b) ☐ Power of Attorney Statement
(when there is an assignee)
10. ☐ English Translation Document (if applicable)
11. ☐ Information Disclosure ☐ Copies of IDS
Statement (IDS)/PTO-1449 Citations
12. ☐ Preliminary Amendment
13. ☐ Return Receipt Postcard (MPEP 503)
14. ☐ Small Entity ☐ Statement filed in prior app
Statement(s) Status still proper and desired
15. ☐ Certified Copy of Priority Document(s)
(if foreign priority is claimed)
16. ☐ Other:

17. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application no:

18. CORRESPONDENCE ADDRESS

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Blakely, Sokoloff, Taylor & Zafman LLP
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FEE TRANSMITTAL

Note: Effective October 1, 1997
Patent fees are subject to annual revision

Complete If Known

Application Number	
Filing Date	07/10/1998
First Named Inventor	GREGG WAGNER
Group Art Unit	
Examiner Name	
Attorney Docket Number	003470.P005

TOTAL AMOUNT OF PAYMENT (\$790.00)

METHOD OF PAYMENT (check one)

1. ☒ The Commissioner is hereby authorized to charge indicated fees & credit any overpayments to:

Acct # 02-2666
Acct Name Blakely Sokoloff Taylor & Zafman LLP
☒ Charge any add'l fee required under 37 CFR 1.16 & 1.17 ☐ Charge issue fee set in 37 CFR 1.18 at the mailing of the Notice of Allowance

2. ☒ Payment Enclosed:
☒ Check ☐ Money Order ☐ Other

Fee Calculation

1. Filing Fee

Large Entity Code	Large Entity Fee (\$)	Small Entity Code	Small Entity Fee (\$)	Fee Description	Fee Paid
101	790	201	395	Utility filing fee	790
106	330	206	165	Design filing fee	
107	540	207	270	Plant filing fee	
108	790	208	395	Reissue filing fee	
114	150	214	75	Provisional filing fee	
Subtotal (1)					(\$790.00)

2. Claims

	*	Extra	Fee from Below	Fee Paid
Total Claims	13	20 -	0 X	
Ind. Claims	2	3 -	0 X	
Multiple Dependent Claims				

Large Entity Code	Large Entity Fee (\$)	Small Entity Code	Small Entity Fee (\$)	Fee Description
103	22	203	11	Claims in excess of 20
102	82	202	41	Independent claims in excess of 3
104	270	204	135	Multiple dependent claim
109	82	209	41	Reissue independent claims over original patent
110	22	210	11	Reissue claims in excess of 20 & over original patent
Subtotal (2) (\$)				

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FEE CALCULATION (continued)

3. Additional Fees

Large Entity		Small Entity		Fee Description	Fee Paid
Code	Fee (\$)	Code	Fee (\$)		
105	130	205	65	Surcharge-late filing fee or oath	
127	50	227	25	Surcharge-late provisional filing fee or cover sheet	
139	130	139	130	Non-English specification	
147	2520	147	2520	For filing a request for reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1840*	113	1840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within 1st month	
116	400	216	200	Extension for reply within 2nd month	
117	950	217	475	Extension for reply within 3rd month	
118	1510	218	755	Extension for reply within 4th month	
128	2060	228	1030	Extension for reply within 5th month	
119	310	219	155	Notice of Appeal	
120	310	220	155	Filing a brief in support of appeal	
121	270	221	135	Request for oral hearing	
138	1510	138	1510	Petition to institute a public use proceeding	
140	110	240	55	Petition to Revive-unavoidable	
141	1320	241	660	Petition to Revive-unintentional	
142	1320	242	660	Utility issue fee (or reissue)	
143	450	243	225	Design issue fee	
144	670	244	335	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Petitions related to provisional applications	
126	240	126	240	Submission of IDS	
581	40	581	40	Recording each patent assignment per property	
146	790	246	395	Filing a submission after final rejection	
149	790	249	395	For each add'l invention to be examined	

Other fee (specify)

Other fee (specify)

*Reduced by Basic Filing Fee Paid

Subtotal (3)

(\$)

SUBMITTED BY: BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

COMPLETE (if applicable)

Name GEORGE WHOOVER

Reg. Number 32,992

Signature

Date

July 10, 1998

Deposit Acct User ID

*Highest number of claims previously paid for if an amendment is being transmitted.

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Our Ref. No. 003470.P005
Express Mail No. EM014063005US

UNITED STATES PATENT APPLICATION FOR

HOUSING FOR PORTABLE HANDHELD ELECTRONIC DEVICE

Inventors: Gregg Wagner
Robert Stewart

Prepared by:

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BACKGROUND OF THE INVENTION

1. FIELD OF THE INVENTION

The present invention relates generally to the field of housings for electronic devices. More particularly, the invention is a hermetically sealed housing for a portable handheld
5 reader/scanner.

2. PRIOR ART

Animal identification systems increasingly use electronic tags. Such tags offer numerous advantages over conventional tags, particularly in the amount of data that can be stored and retrieved with a reader.

10 Readers for electronic animal identification tags are relatively complex electronic devices, particularly if designed to operate with a variety of identification protocols. To be useful in the field, a portable reader must withstand a wide range of environmental conditions, including moisture, dust, physical abuse, etc. The housing should therefore be hermetically sealed to protect the electronic components. A portable reader/scanner should also be lightweight and
15 ergonomically designed.

SUMMARY OF THE INVENTION

The present invention provides a lightweight, ergonomic handheld portable device designed for ambidextrous use. An injection-molded housing employs a minimal number of parts and is hermetically sealed without the use of adhesives to join the component parts.

- 5 In an exemplary embodiment, the present invention provides a portable handheld scanner comprising a one-piece hollow body portion, a scan face and a handle end cap. The body portion and the scan face snap together without the need for adhesive bonding or fasteners using a tongue-and-groove closure mechanism.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of a portable handheld scanner housing constructed in accordance with the present invention.

Figure 2 is an exploded view of the housing of **Figure 1**.

5 **Figure 3** is a partial cross-sectional view taken through **line 3-3** of **Figure 1**.

DETAILED DESCRIPTION OF THE INVENTION

In the following description, for purposes of explanation and not limitation, specific details are set forth in order to provide a thorough understanding of the present invention.

However, it will be apparent to one skilled in the art that the present invention may be practiced

5 in other embodiments that depart from these specific details. In other instances, detailed descriptions of well-known methods and devices are omitted so as to not obscure the description of the present invention with unnecessary detail.

Figure 1 illustrates an exemplary embodiment of the present invention. A portable handheld reader/scanner **10** has a hollow body portion **12** which consists of an electronics enclosure portion **14** and a barrel-grip handle portion **16**. Body portion **12** is made as a single part rather than as two joined halves. This eliminates the need for bonding or otherwise joining two halves and also eliminates the presence of an unattractive seam line. The electronics enclosure portion **14** is closed off with scan face **18**, and the handle portion is closed off with end cap **20**. Controls and displays for the operation of reader/scanner **10** are provided on the top surface of enclosure portion **14**. These include a light-emitting diode (LED) indicator **22**, a liquid crystal display (LCD) alphanumeric display panel **24**, menu and scroll buttons **26** and a power on/read button **28**. Control buttons **26** and **28** are disposed for ease of operation by the thumb of a user, regardless of which hand reader/scanner **10** is held in.

Referring now to **Figure 2**, the major components of reader/scanner **10** are shown in an exploded view. Scan face **18** snaps onto body portion **12** as will be more fully described below. A gasket **30** is applied around the perimeter of scan face **18** to aid in achieving a hermetic seal. End cap **20** attaches to the rear of body portion **12** with captive screw **32** which engages a threaded receptacle (not shown) in handle portion **16**. Gasket **34** is applied to the interface between end cap **20** and handle portion **16** to achieve a hermetic seal. Handle portion **16** is conveniently used as a compartment for batteries **36**.

Body portion 12, scan face 18 and end cap 20 are preferably made of a thermoplastic elastomer such as Santoprene® manufactured by Advanced Elastomer Systems of Akron, Ohio. This produces a housing that is watertight, buoyant and exceptionally rugged. The surface of the housing has a non-slip gripping quality even when wet and will not crack or chip, even when
5 dropped onto concrete from a height of two meters.

The final assembly of reader/scanner 10 is accomplished with ease and at low cost. An internal electronics printed circuit board (not shown) installs into slots integrally molded in enclosure portion 12. An antenna coil (also not shown) snaps into scan face 18 without fasteners. The body portion and scan face snap together and the end cap is attached with a single
10 captive screw.

Figure 3 illustrates details of the mechanism for attaching scan face 18 to body portion 12. A tongue-and-groove attachment mechanism is employed which takes advantage of the elastomeric properties of the Santoprene® material. Body portion 12 has a "T" shaped tongue 40 that mates with groove 42 in the perimeter of scan face 18. Owing to the resiliency of the
15 material of which scan face 18 is made, tongue 40 snaps into groove 42 in a manner similar to the sealing mechanism widely used for plastic storage bags. A suitable seal can be achieved without the use of a separate gasket; however, gasket 30 may be applied around tongue element 40 to improve the hermeticity of the seal.

It will be recognized that the above described invention may be embodied in other specific
20 forms without departing from the spirit or essential characteristics of the disclosure. Thus, it is understood that the invention is not to be limited by the foregoing illustrative details, but rather is to be defined by the appended claims.

CLAIMS

WHAT IS CLAIMED IS:

1 1. A housing for a portable handheld electronic device comprising:
2 a body portion having an internal cavity and an aperture opening thereto, said
3 body portion further having a perimeter portion surrounding the aperture;
4 a cover for the aperture;
5 one of the cover and perimeter portion having a groove and the other having a
6 projecting tongue element for mating engagement with the groove.

1 2. The housing of claim 1 further comprising a gasket disposed around the tongue
2 element.

1 3. The housing of claim 1 wherein the perimeter portion and cover are substantially
2 planar.

1 4. The housing of claim 1 wherein the tongue portion has a substantially "T"-shaped
2 cross section.

1 5. The housing of claim 1 wherein the housing and cover are molded from a
2 thermoplastic elastomer.

1 6. A housing for a portable handheld electronic reader/scanner comprising:
2 a body portion having an electronics enclosure portion and a handle portion, said
3 electronics enclosure portion having an aperture surrounded by a perimeter portion;
4 a substantially planar scan face adapted to cover said aperture;
5 one of the scan face and perimeter portion having a groove and the other having a
6 projecting tongue element for mating engagement with the groove.

1 7. The housing of claim 6 further comprising an end cap coupled to the handle
2 portion.

1 8. The housing of claim 6 wherein the handle portion comprises a battery
2 compartment.

1 9. The housing of claim 6 further comprising a gasket disposed around the tongue
2 element.

1 10. The housing of claim 7 further comprising a gasket disposed around the end cap.

1 11. The housing of claim 6 wherein the tongue portion has a substantially “T”-shaped
2 cross section.

1 12. The housing of claim 6 wherein the housing and cover are molded from a
2 thermoplastic elastomer.

13. The housing of claim 7 wherein the housing, cover and end cap are molded from a
thermoplastic elastomer.

ABSTRACT

An injection-molded housing for a handheld portable electronic device employs a minimal number of parts. The housing, made of a thermoplastic elastomer, is watertight, buoyant and exceptionally rugged. Principal components of the housing snap together without the need for adhesive bonding or fasteners using a tongue-and-groove closure mechanism.

5

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below, next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

HOUSING FOR PORTABLE HANDHELD ELECTRONIC DEVICE

the specification of which

_____ is attached hereto.
 _____ was filed on _____ as
 Application Serial No. _____
 and was amended on _____
 (if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above. I do not know and do not believe that the same was ever known or used in the United States of America before my invention thereof, or patented or described in any printed publication in any country before my invention thereof or more than one year prior to this application, that the same was not in public use or on sale in the United States of America more than one year prior to this application, and that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve months prior to this application.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119, of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)

Priority Claimed

(Number)	(Country)	(Day/Month/Year Filed)	Yes	No
_____	_____	_____	_____	_____
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No
_____	_____	_____	_____	_____
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No
_____	_____	_____	_____	_____

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)

(Filing Date)

(Status -- patented, pending,
abandoned)

(Application Serial No.)

(Filing Date)

(Status -- patented, pending,
abandoned)

I hereby appoint BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP, a firm including: Farzad E. Amini, Reg. No. P42,261; Aloysius T. C. AuYeung, Reg. No. 35,432; William Thomas Babbitt, Reg. No. 39,591; Carol F. Barry, P41,600; Jordan Michael Becker, Reg. No. 39,602; Bradley J. Bereznak, Reg. No. 33,474; Michael A. Bernadicou, Reg. No. 35,934; Roger W. Blakely, Jr., Reg. No. 25,831; Gregory D. Caldwell, Reg. No. 39,926; Kent M. Chen, Reg. No. 39,630; Lawrence M. Cho, Reg. No. 39,942; Yong S. Choi, Reg. No. P43,324; Thomas M. Coester, Reg. No. 39,637; Roland B. Cortes, Reg. No. 39,152; Barbara Bokanov Courtney, Reg. No. P42,442; William Donald Davis, Reg. No. 38,428; Michael Anthony DeSanctis, Reg. No. 39,957; Daniel M. De Vos, Reg. No. 37,813; Tarek N. Fahmi, Reg. No. P41,402; James Y. Go, Reg. No. 40,621; Richard Leon Gregory, Jr., P42,607; Dinu Gruia, Reg. No. P42,996; David R. Halvorson, Reg. No. 33,395; Thomas A. Hassing, Reg. No. 36,159; Phuong-Quan Hoang, P41,839; Willmore F. Holbrow III, Reg. No. P41,845; George W. Hoover II, Reg. No. 32,992; Eric S. Hyman, Reg. No. 30,139; Dag H. Johansen, Reg. No. 36,172; William W. Kidd, Reg. No. 31,772; Tim L. Kitchen, Reg. No. P41,900; Michael J. Mallie, Reg. No. 36,591; Paul A. Mendonsa P42,879; Darren J. Milliken, P42,004; Thinh V. Nguyen, Reg. No. P42,034; Kimberley G. Nobles, Reg. No. 38,255; Michael A. Proksch P43,021; Babak Redjaian, Reg. No. P42,096; James H. Salter, Reg. No. 35,668; William W. Schaal, Reg. No. 39,018; James C. Scheller, Reg. No. 31,195; Anand Sethuraman, Reg. No. P43,351; Charles E. Shemwell, Reg. No. 40,171; Maria McCormack Sobrino, Reg. No. 31,639; Stanley W. Sokoloff, Reg. No. 25,128; Allan T. Sponseller, Reg. No. 38,318; Geoffrey T. Staniford, P43,151; Judith A. Szepesi, Reg. No. 39,393; Vincent P. Tassinari, Reg. No. P42,179; Edwin H. Taylor, Reg. No. 25,129; George G. C. Tseng, Reg. No. 41,355; Lester J. Vincent, Reg. No. 31,460; John Patrick Ward, Reg. No. 40,216; Stephen Warhola, P43,237; Ben J. Yorks, Reg. No. 33,609; and Norman Zafman, Reg. No. 26,250; my attorneys; and Amy M. Armstrong, Reg. No. P42,265; Robert Andrew Diehl, Reg. No. P40,992; and Edwin A. Sloane, Reg. No. 34,728; my patent agents, with offices located at 12400 Wilshire Boulevard, 7th Floor, Los Angeles, California 90025, telephone (310) 207-3800, with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of Sole/First Inventor Gregg Wagner

Inventor's Signature

Date July 6, 1998

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Date 06 JUL 98

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(Country)

Post Office Address 1057 Reed Ranch Road
Boulder, Colorado 80302

FIG. 1

10

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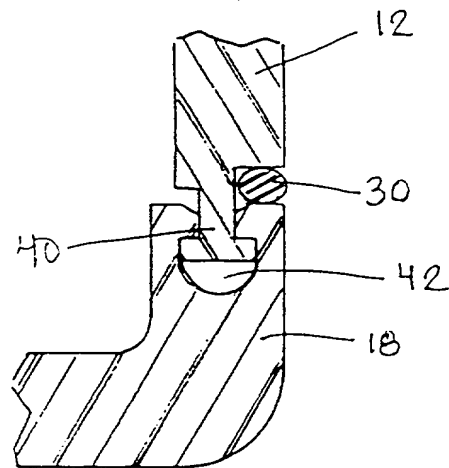


FIG. 3